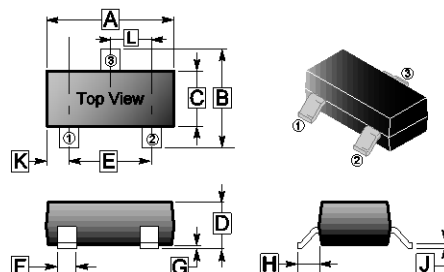


RoHS Compliant Product
A Suffix of "-C" specifies halogen & lead-free

FEATURES

- N-Ch MOSFET in a SOT-23 Plastic Package
- Sensitive Gate Trigger Current
- Low Holding Current
- ESD protected up to 2kV

SOT-23



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.65	3.10	G	0	0.18
B	2.10	3.00	H	0.55	REF.
C	1.10	1.80	J	0.05	0.26
D	0.89	1.40	K	0.60	REF.
E	1.70	2.30	L	0.95	TYP.
F	0.28	0.55			

MARKING

702K2

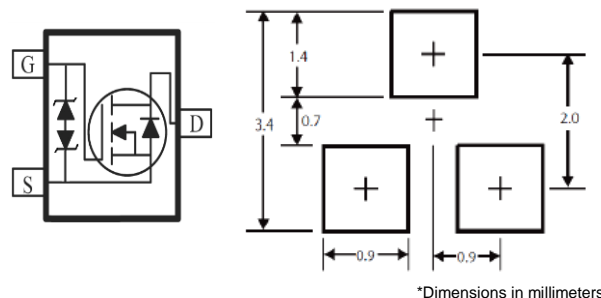
PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-23	3K	7 inch

ORDER INFORMATION

Part Number	Type
SMS72BR-C	Lead (Pb)-free and Halogen-free

Mounting Pad Layout



*Dimensions in millimeters

MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Ratings	Unit	
Drain-Source Voltage	V_{DS}	60	V	
Gate-Source Voltage	V_{GS}	± 20	V	
Continuous Drain Current @ $V_{GS}=10\text{V}$	$T_A=25^\circ\text{C}$	300	mA	
	$T_A=85^\circ\text{C}$	210		
Pulsed Drain Current ¹	I_{DM}	1.2	A	
Power Dissipation	$T_A=25^\circ\text{C}$	P_D	350	mW
Operating Junction & Storage Temperature Range	T_J, T_{STG}	150, -55~150	$^\circ\text{C}$	
Thermal Resistance Ratings				
Thermal Resistance from Junction-Ambient ²	$R_{\theta JA}$	Steady State, 300	$^\circ\text{C/W}$	
		$t \leq 5\text{sec}, 92$		

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	60	-	-	V	$V_{GS}=0, I_D=250\mu\text{A}$
Gate-Threshold Voltage	$V_{GS(th)}$	1	-	2.5	V	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$
Forward Transconductance	g_{fs}	80	-	-	mS	$V_{DS}=10\text{V}, I_D=0.2\text{A}$
Gate-Source Leakage Current	I_{GSS}	-	-	± 10	μA	$V_{GS}=\pm 20\text{V}, V_{DS}=0$
Drain-Source Leakage Current	I_{DSS}	-	-	1	μA	$V_{DS}=60\text{V}, V_{GS}=0$
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	-	2.3	Ω	$V_{GS}=10\text{V}, I_D=0.5\text{A}$
		-	1.7	2.7		$V_{GS}=5\text{V}, I_D=0.05\text{A}$
Total Gate Charge	Q_g	-	0.7	-	nC	$I_D=200\text{mA}$ $V_{DS}=10\text{V}$ $V_{GS}=4.5\text{V}$
Threshold Gate Charge	$Q_{g(th)}$	-	0.1	-		
Gate-Source Charge	Q_{gs}	-	0.3	-		
Gate-Drain Charge	Q_{gd}	-	0.1	-		
Turn-on Delay Time	$T_{d(on)}$	-	12.2	-	nS	$V_{DD}=25\text{V}$ $I_D=500\text{mA}$ $V_{GS}=10\text{V}$ $R_G=25\Omega$
Rise Time	T_r	-	9	-		
Turn-off Delay Time	$T_{d(off)}$	-	55.8	-		
Fall Time	T_f	-	29	-		
Input Capacitance	C_{iss}	-	25	-	pF	$V_{GS}=0$ $V_{DS}=20\text{V}$ $f=1\text{MHz}$
Output Capacitance	C_{oss}	-	11	-		
Reverse Transfer Capacitance	C_{rss}	-	2.5	-		
Source-Drain Diode						
Forward on Voltage	V_{SD}	-	-	1.5	V	$I_S=250\text{mA}, V_{GS}=0$

Notes:

1. The data tested by pulsed, Pulse Width $\leq 10\mu\text{s}$, Duty Cycle $\leq 1\%$.
2. Surface mounted on FR-4 board using 1 sq in pad size with 1oz Cu.

CHARACTERISTIC CURVES

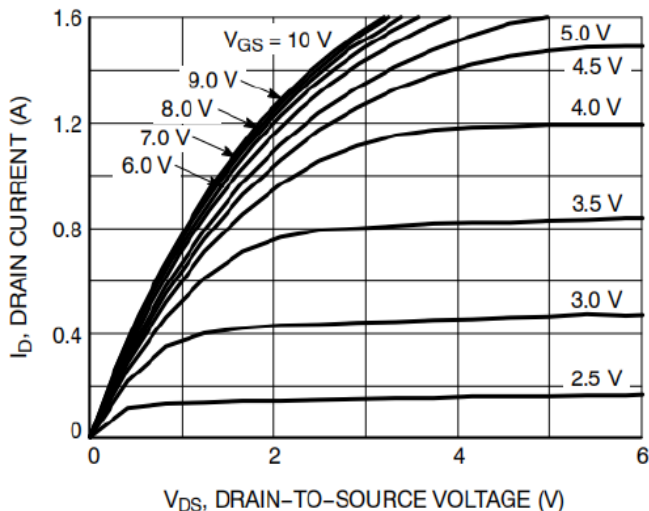


Figure 1. On-Region Characteristics

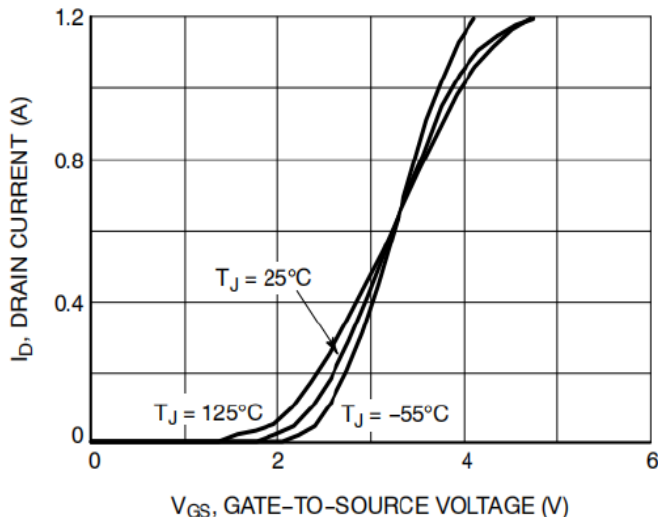


Figure 2. Transfer Characteristics

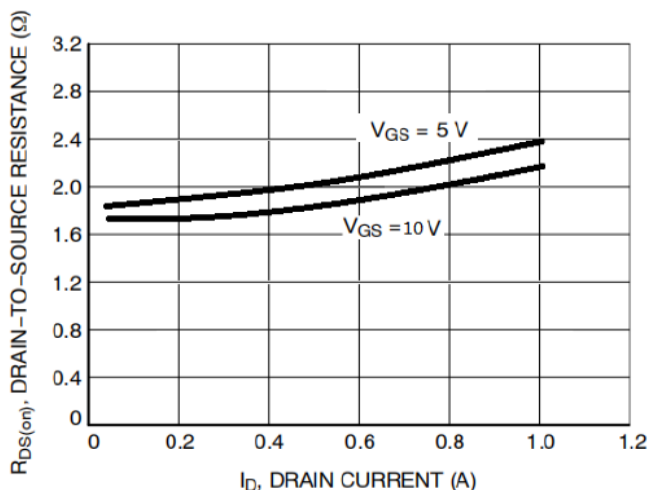


Figure 3. On-Resistance vs. Drain Current and Temperature

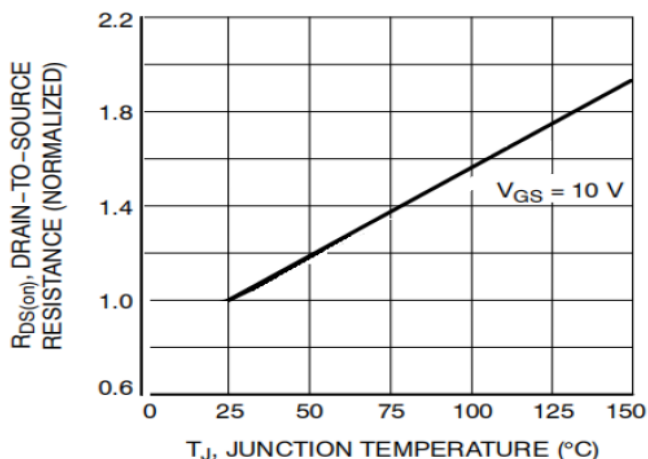


Figure 4 On-Resistance Variation with Temperature

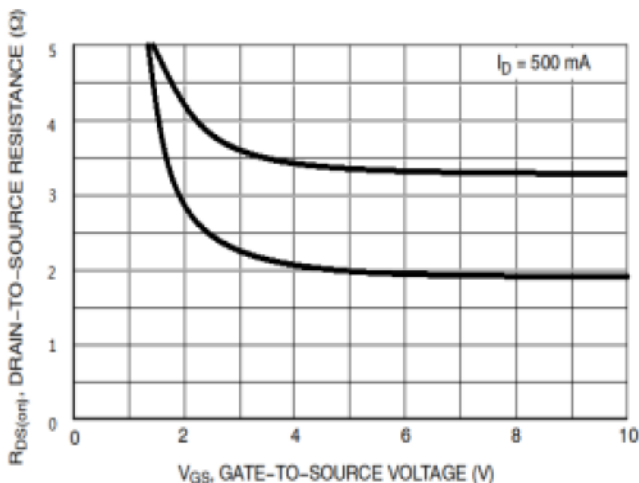


Figure 5. On-Resistance vs. Gate-to-Source Voltage

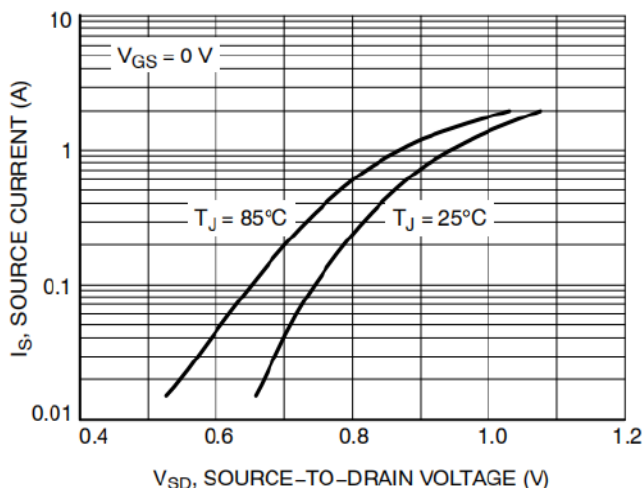


Figure 6 Diode Forward Voltage vs. Current

CHARACTERISTIC CURVES

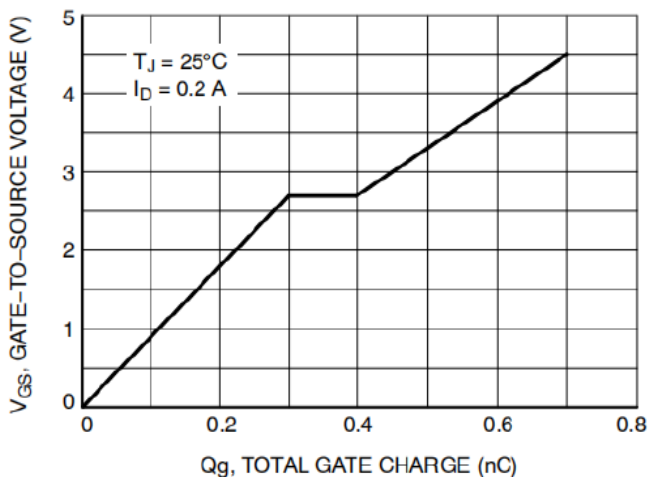


Figure 7 . Gate-to-Source and Drain-to-Source Voltage vs. Total Charge

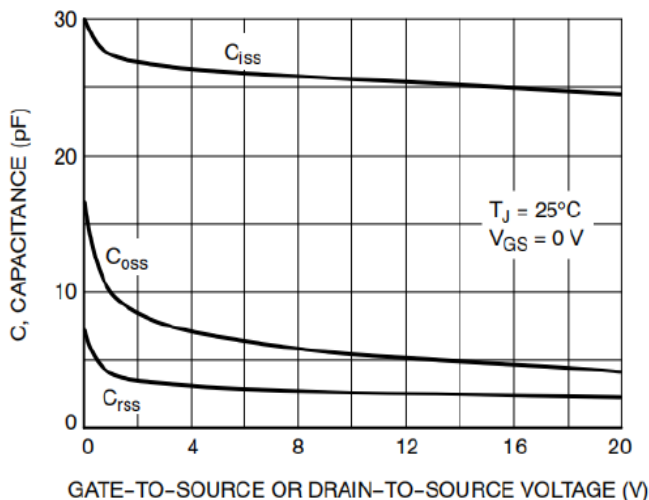


Figure 8 . Capacitance Variation

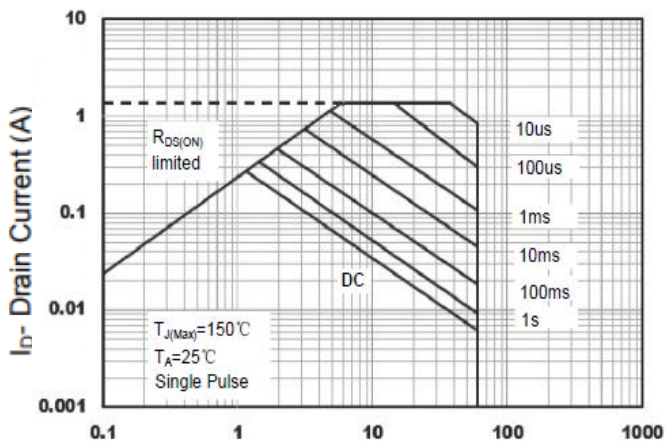


Figure 9 : Safe Operation Area

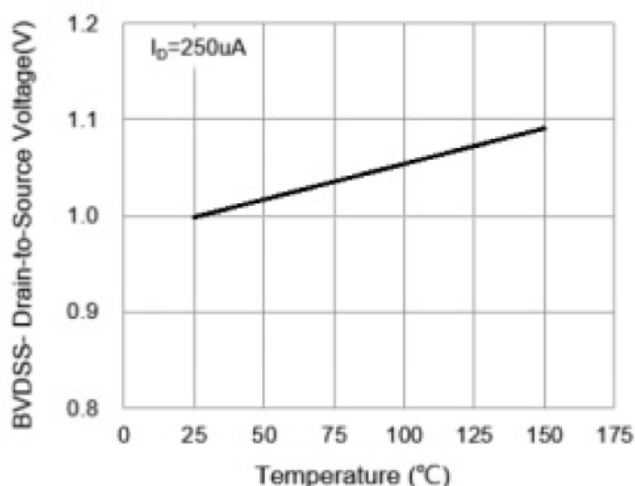


Figure 10 : Breakdown Voltage vs. Temperature

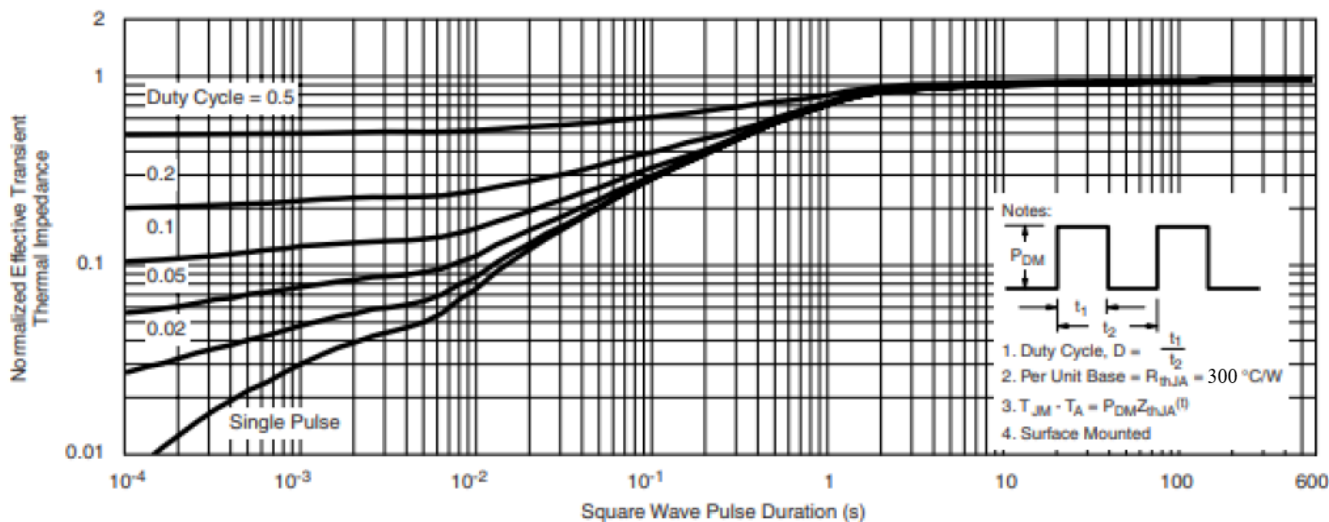


Figure 11 : Normalized Thermal Transient Impedance, Junction-to-Ambient